# THEORETICAL POPULATION BIOLOGY

AN INTERNATIONAL JOURNAL


EDITORS

K. Dietz

S. Karlin
J. Roughgarden
T. Schoener
A. Templeton

ASSOCIATE EDITORS

P. Abrams
B. Arthur
M. G. Bulmer
B. Charlesworth
F. B. Christiansen
M. T. Clegg
C. C. Cockerham
J. Cohen
W. Engels
W. J. Ewens
J. Felsenstein
M. P. Hassell
J. M. Hoem
M. Kimura
J. A. Leon
B. Levin
S. Levin
W.-H. Li
T. Nagylaki
M. Nei
T. Ohta
C. F. Sing
M. Slatkin
C. Strobeck
J. Sved
E. Thompson
M. Turelli
B. S. Weir

MANAGING EDITOR

M. Feldman



VOLUME 25 · 1984

ACADEMIC PRESS, INC.

(Harcourt Brace Jovanovich, Publishers)

San Diego Orlando San Francisco New York London

Toronto Montreal Sydney Tokyo São Paulo

Copyright © 1984 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1984 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0040-5809/84 $3.00

*Printed by the St. Catherine Press, Ltd., Bruges, Belgium*

# CONTENTS OF VOLUME 25

## Number 1, February 1984


Daniel Goodman. Risk Spreading as an Adaptive Strategy in Iteroparous Life Histories . . . . . 1

Adam Łomnicki and Jerzy Ombach. Resource Partitioning within a Single Species Population and Population Stability: A Theoretical Model . . . . . 21

Trevor F. Cox and Michael A. A. Cox. The Maximum Non-unit Eigenvalue for the Wright–Fisher Model of Random Genetic Drift Incorporating Selection . . . . . 29

John M. Emlen. Natural Selection and Population Density-Feedback. I. Population Limitation by Food Shortage, Predation, and Self-Damping Factors . . . . . 41

John M. Emlen. Natural Selection and Population Density-Feedback. II. The Evolution of Functional Response Curves 62

Yoh Iwasa and Jonathan Roughgarden. Shoot/Root Balance of Plants: Optimal Growth of a System with Many Vegetative Organs . . . . . 78

Peter Abrams. Variability in Resource Consumption Rates and the Coexistence of Competing Species . . . . . 106


## Number 2, April 1984


Werner Katzmann and Klaus Dietz. Evaluation of Age-Specific Vaccination Strategies . . . . . 125

Michael Turelli. Heritable Genetic Variation via Mutation–Selection Balance: Lerch's Zeta Meets the Abdominal Bristle 138

Annikki Mäkelä and Pertti Hari. Interrelationships between the Lotka–Volterra Model and Plant Eco-physiology . . . . . 194

Sabin Lessard. Evolutionary Dynamics in Frequency-Dependent Two-Phenotype Models . . . . . 210


## Number 3, June 1984


Gary E. Belovsky. Snowshoe Hare Optimal Foraging and Its Implications for Population Dynamics . . . . . 235

J. S. Brew. An Alternative to Lotka–Volterra Competition in Coarse-Grained Environments . . . . . 265

S. P. Blythe, R. M. Nisbet, and W. S. C. Gurney. The Dynamics of Population Models with Distributed Maturation Periods . . . . . 289
A. Gimelfarb. Quantitative Characters under Assortative Mating: Gametic Model . . . . . 312
Uri Liberman and Samuel Karlin. Theoretical Models of Genetic Map Functions . . . . . 331
Carlo Matessi and Marino Gatto. Does *K*-Selection Imply Prudent Predation? . . . . . 347

Author Index for Volume 25 . . . . . 364